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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,987	03/24/2004	Katsuyoshi Hiraki	1117.70175	4463
7590 12/26/2008				
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EXAMINER				
CHOW, YUK				
ART UNIT		PAPER NUMBER		
2629				
MAIL DATE		DELIVERY MODE		
12/26/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/807,987

**Applicant(s)**

HIRAKI ET AL.

**Examiner**

YUK CHOW

**Art Unit**

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 9 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Kumashiro (US 5,898,796).

As to **claim 1**, Kumashiro discloses a liquid crystal display device configured to compare inputted image data and image data of a preceding frame and subject the inputted image data to data correction for improving response speed of liquid crystal based on a result of the comparison, comprising;

an image data processor for correcting the inputted image data (see Fig. 1, input signal ); and

a data driver for outputting the corrected data received from the image data processor corresponding to the input image data (Fig. 1(output signal of N levels).

wherein at least one of an input image data of a maximum tone and an input image data of a minimum tone is separately used only for the data correction (see Fig. 1(12) and Fig. 9A-9E) and is not subject to the data correction in the image data processor (see Fig. 8, Min and Max is not subject to data correction in the image data processor), and

the data driver outputs a correction value (Fig. 6, sign and absolute value) for correcting the input image data of the maximum tone and the input image data of the minimum tone (see Col. 6 lines 4-45).

As to **claim 2**, Kumashiro discloses a liquid crystal display device according to claim 1,

wherein the data driver outputs the correction value (Fig. 6(sign and value)) for correcting the input image data of the maximum tone and the input image data of the minimum tone (see Col. 6 lines 4-45).

As to **claim 3**, Kumashiro discloses a liquid crystal display device according to claim 1,

wherein all tones corresponding to the input data that said data driver is capable of outputting are displayed by arbitrarily combining all the outputs of said data driver except the output corresponding to the input image data of the maximum tone and minimum tone. (see Fig. 8(Max-Min))

As to **claim 4**, Kumashiro discloses a liquid crystal display device according to claim 3, further comprising

a table (Fig. 11(51)) in which the tones that said data driver is capable of outputting are shown so as to be related to the combinations of the outputs of said data driver except the output corresponding to the input image data of the maximum tone and minimum tone. (see Col. 5 lines 23-43)

As to **claim 5**, Kumashiro discloses a liquid crystal display device according to claim 3,

wherein an error diffusion method is applied to the combinations of the outputs of said data driver except the output corresponding to the input image data of the maximum tone and minimum tone. (see Fig. 1, the output of the image characteristic unit, namely Max and Min are not combined to the output)

As to **claim 9**, Kumashiro discloses a liquid crystal display device configured to compare inputted image data and image data of a preceding frame and subject the inputted image data to data correction for improving response speed of liquid crystal based on a result of the comparison, comprising:

an image data processing part (Fig. 1(1)) for correcting the inputted image data;  
an error diffusion processing part (Fig. 1(2-11)) configured to process the image data for generating a mean tone (Fig. 3(T3)) between a first tone and a second tone,  
wherein said image data processing part outputs a signal to prohibit said error diffusion part from generating the mean tone for image data that has undergone the data correction. (see Fig. 6, if neither the positive component nor the negative component of calculated error data is fed back to the error diffusion process at all by setting gain to "0" or no data is undergone for correction, see Col. 6 lines 4-18)

Regarding **claims 12-14**, limitations within these claims are identical to **claims 1-3**, except they are the method claims. Therefore, same rejections apply to these claims.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 11 is rejected under 35 U.S.C. 102(e) as being anticipated by Endo et al (US 2002/0158825).

As to **claim 11**, Endo discloses a liquid crystal display device, configured to compare inputted image data and image data of a preceding frame and subject the inputted image data to data correction for improving response speed of liquid crystal based on a result of the comparison, a correction amount in the data correction being changed according to a temperature, comprising:

a temperature measuring part (Fig. 8(205)),

wherein a temperature measured in said temperature measuring part is corrected by a temperature correction amount that varies with time, during a period from a power supply time to a temperature stable time (See Abstract).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumashiro (US 5,898,796) in view of AAPA.

As to **claim 6**, Kumashiro discloses a liquid crystal display device according to claim 1 above.

However, Kumashiro does not specifically teach wherein correction value output by said data driver comprises at least one of an output corresponding to a higher luminance than a luminance of the maximum tone and an output corresponding to a lower luminance than a luminance of the minimum tone.

Applicant admitted prior art teaches at least one of an output corresponding to a higher luminance than a luminance of the maximum tone (see AAPA Fig. 7B, output (BC) corresponding to a higher luminance than a luminance of maximum tone (BB)).

It would have been obvious to one ordinary skill in the art at the time of invention was made to use output corresponding to a higher luminance as in AAPA into liquid crystal display device of Kumashiro, since this method contributes to a faster response time (See AAPA [0005]-[0014]).

As to **claim 7**, Kumashiro and AAPA disclose a liquid crystal display device according to claim 6,

wherein as at least one of the output corresponding to the higher luminance than the luminance of the maximum tone and the output corresponding to the lower luminance than the luminance of the minimum tone (See AAPA Fig. 7A and 7B), a plurality of outputs corresponding to luminances different from each other are allowed to be outputted (see AAPA Fig. 7A and 7B LB and LC are different).

As to **claim 8**, Kumashiro discloses a data driver being for outputting, in addition to outputs corresponding to all tones designatable by inputted image data (see Abstract and Fig. 2, output gradation).

However, Kumashiro does not specifically teach at least one of an output corresponding to a higher luminance than a luminance of a maximum tone and an output corresponding to a lower luminance than a luminance of a minimum tone.

Applicant admitted prior art teaches at least one of an output corresponding to a higher luminance than a luminance of the maximum tone (see AAPA Fig. 7B, output (BC) corresponding to a higher luminance than a luminance of maximum tone (BB)).

It would have been obvious to one ordinary skill in the art at the time of invention was made to use output corresponding to a higher luminance as in APPA into liquid crystal display device of Kumashiro, since this method contributes to a faster response time (See AAPA [0005]-[0014]).

**Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumashiro (US 5,898,796).**

As to **claim 10**, Kumashiro discloses a liquid crystal display device configured to compare inputted image data and image data of a preceding frame and subject the inputted image data to data correction for improving response speed of liquid crystal based on a result of the comparison, comprising

a correction amount in the data correction is changed by a unit of at least one horizontal display line of a display part (see Fig. 16(71) and Col. 9 lines 1-17).

However, Kumashiro does not teach a backlight that is impulse-driven.



Official Notice is taken for a backlight that is impulse-driven.

It would have been obvious to one ordinary skill in the art at the time the invention was made to use impulse-driven for backlight control into liquid crystal display device of Kumashiro, since this technique is commonly used for LCD backlight.

***Response to Arguments***

6. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YUK CHOW whose telephone number is (571)270-1544. The examiner can normally be reached on 8-6 M-TH E.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571 272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Y. C./  
Examiner, Art Unit 2629

/Amare Mengistu/  
Supervisory Patent Examiner, Art Unit 2629